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August 4, 2017

Mr. Robert J. Wyatt
NW Natural
220 NW Second Avenue
Portland, OR 97209

RE: Draft Stormwater Source Control Evaluation Report, NW Natural "Gasco" Site
Portland, Oregon - ECSI# 84

Dear Bob:

The Department of Environmental Quality (DEQ) reviewed the "Draft Stormwater Source Control Evaluation Report" for the NW Natural Gasco Site, dated June 30, 2017 (Draft SCE). Anchor QEA, LLC prepared the Draft SCE on behalf of NW Natural. The Draft SCE presents the results of NW Natural's work under the DEQ approved revised Stormwater Source Control Work Plan (SC Work Plan) to assess the potential for discharges of hazardous substances from stormwater on the Gasco Site to cause or contribute to adverse impacts in the Willamette River and its sediments. The document also includes information that DEQ requested during our review of the SC Work Plan and provides NW Natural's initial recommendations for stormwater source control measures to be implemented on the site to prevent or mitigate potential impacts.

DEQ also inspected the site on July 27, 2017, jointly with City of Portland stormwater program staff. During this visit, DEQ confirmed locations of discharges and industrial activities taking place on site. The site visit assisted us in preparing comments on the Draft SCE and in determining the need for regulation of additional site stormwater discharges under DEQ's 2017 renewal of the National Pollutant Discharge Elimination System 1200Z Industrial Stormwater General Permit. Once DEQ issues the 2017 renewal of the 1200Z permit, you will receive a letter with details and timeframes on applying for the permit or demonstrating no exposure of industrial activities and legacy contamination to stormwater. We can discuss DEQ's preference for a site-wide permit, as well as any necessary overlaps with tenant permits and with the source control process, at that time. However, as preparation of a stormwater pollution control plan and other application elements can be time consuming, DEQ advises that you start planning prior to receipt of the letter.

Based on our review of the information presented in the Draft SCE, DEQ concludes:

- Source control measures, whether permanent or interim, are needed in basins C and D, as well as to prevent uncontrolled overland runoff along the shoreline and other ponding areas of the site, which may contribute to direct discharges to the river during saturated winter conditions.

- There is extensive existing ponding and contamination of soil and shallow groundwater in area A. Therefore, demonstration of infiltration efficacy and acceptability is required to support the proposal for abandoning stormwater collection and conveyance features as part of the Koppers leasehold demolition work.
- Following evaluation and selection of acceptable site-wide stormwater control measures, an effectiveness demonstration plan must be developed and implemented. DEQ anticipates the plan will include additional observations and sampling and analysis to evaluate performance.
- Subsequent to performance monitoring, an assessment of all relevant stormwater and solids data should be prepared, with comparison to the EPA January 2017 Record of Decision Portland Harbor Cleanup Levels, supplemented by updated Joint Source Control Strategy Table 3-1 Screening level Values.

The basis for DEQ's conclusions are provided as the comments below. NW Natural should submit a source control measure implementation and performance monitoring work plan, following the template in Appendix B of DEQ's *Guidance for Evaluating the Stormwater Pathway at Upland Sites*, 2009, for DEQ's review and approval and that addresses our comments.

DEQ also provided the Draft SCE to EPA and the City of Portland for their review and comments. Understanding that DEQ was preparing a request for revision, EPA opted to provide review comments on the subsequent revision, rather than providing comment now. The City reiterated the need for documentation of formal abandonment, per City requirements, of any stormwater infrastructure and connections to City-owned stormwater infrastructure proposed for decommissioning.

GENERAL COMMENTS

1. DEQ's comment email from November 8, 2016, on the draft SC Work Plan, requested a meeting or phone discussion on the SCE submittal during its development and following implementation of the SC Work Plan. Despite Anchor's email on December 19, 2017, confirming that a check-in on development of the SCE would be helpful, DEQ was not contacted about development of the report prior to submittal of the Draft SCE on July 5, 2017. Document deficiencies may have been avoided by arranging check-in meetings and/or phone calls to discuss format and content. DEQ expects improved communication to occur going forward.
2. The structure of the Draft SCE does not follow the template for a Stormwater SCE as provided in Appendix C of DEQ's *Guidance for Evaluating the Stormwater Pathway at Upland Sites*, 2009. Furthermore, the format and content of the submittal are inadequate for an SCE. For these reasons DEQ does not approve the Draft SCE. Rather than revise this document, DEQ requests that NW Natural expand information on source control measures selection, implementation, and performance monitoring, in alignment with the template provided in Appendix B of DEQ's Guidance and retitle the revised report appropriately.

SECTION SPECIFIC COMMENTS

3. Table 2-1- Stormwater Drainage Basin Designations: DEQ appreciates the updated information on site drainage basins, responsive to our comments during work plan development. Because drainage basins are now designated with different letters than in the 2010 Data Summary Report, confusion arises regarding comments referring to past basin designations versus those in

reports going forward. Please rectify this by adding a column to the table indicating former basin designations (e.g., B infiltration areas were formerly referred to as C, and C tenant areas were formerly referred to as D1 and D2, etc.).

4. Section 2 - Stormwater Map Update: DEQ appreciates the updated information offered on the map and in the report text, to the extent possible given evolving conditions at the site since the 2010 Data Summary Report. However, features and information omitted or changed from Figure 2 of the 2010 report require clarification, including:
    a. Fate of the pond in the northernmost infiltration area B (formerly C);
    b. Explanation of four features running perpendicular to the shoreline on the 2010 map, potentially indicating discharge pathways. Two of the features (perhaps dock structures?) faintly remain on the 2017 map, but without labeling;
    c. Discussion of activities and stormwater fate from the docks;
    d. Omission of an oil/water separator in the storm line paralleling the shoreline in tenant area C (formerly D1);
    e. Omission of four catch basins and approximation of the pipe location along the north edge of the northernmost building in area D (formerly E);
    f. Location of fire suppression tank (added in 2007), storage building (added in 2010/2011) and telecommunications tower (added in 2016), along with associated catch basins, in area D (formerly E), as noted in Section 3.1.1 and reconfiguration of piping here that is not described in Section 3.1.1;
    g. Significantly different configurations of storm piping in area A are presented on the 2017 map, without explanation on the map or in text as to why they are different than the 2010 map. Please update this with both past and planned reconfiguration and decommissioning details;
    h. Please map and describe the fate of stormwater from the NW Natural odorizing area in the southernmost corner of the site;
    i. Please retain information from the 2010 map on the eastern B (formerly C) infiltration corner as to the former ditch discharge (hard piped in 2005) from the north pond and sanitary discharge from the south pond. Please include current configuration of sanitary lines (which do not appear on Figure 2-1 or Figure 4-2); and,
    j. Please map the boat ramp like feature that slopes down to access the river in the eastern end of the shoreline.
    k. In addition, during our July 27, 2017 site visit, we discussed a number of discrepancies in mapping of stormwater conveyance features in tenant and NW Natural areas of the site.

    Please ensure that figures generated for the revised submittal include the appropriate corrections and additions to reflect current conditions and provide explanations corresponding to each revision made between the 2010 Data Summary Report and the revised submittal compiled on a separate table.

5. Section 3.4 - Demolition of Structures in the Koppers Lease Area: DEQ understands that on-going negotiation and project planning prevent presentation of final details regarding stormwater conditions in this area.

a. However, given the significant ponding observed just northeast of this area and potential for runoff from the southeast corner of this area to discharge to off-site stormwater conveyance inlets or to Doane Creek, additional information is needed as to the efficacy of infiltrating additional stormwater here, as is proposed with abandonment of existing conveyance features. DEQ also understands that the Koppers demolition project may result in the cessation of dewatering activities in the former subgrade tank farm area. If so, the cessation of dewatering must be included in the evaluation as an additional source of infiltration to groundwater. If infiltration is not physically practicable in this area, development of other options for controlling stormwater from this area is needed.
b. In addition, because surfaces, soils and shallow groundwater are known to be highly contaminated in this area, the significance of mobilizing contamination via infiltration, both from soils into groundwater and within groundwater to the river, must be evaluated. DEQ understands that the Gasco Operable Unit Feasibility Study is in process and will evaluate remediation of the Fill water-bearing zone, including shallow groundwater in this area. Until the remedy is selected and implemented the unintended effects of mobilizing contamination through increasing infiltration in this area must be evaluated.

6. Section 3.5 – WR-285 and WR-467 Outfall Verification: DEQ appreciates the investigation to confirm outfalls in area G. Given the small area of roof drainage, it is likely unnecessary to maintain each of the three small outfalls shown on Figure 2-1. Because WR-285 is severed and WR-467 is buried, with discharges assumed to infiltrate in the riprapped bank, DEQ recommends decommissioning these outfalls and adding a green roof to eliminate discharge or reconfiguring roof runoff to the single, functional outfall. While DEQ agrees that the nature of this runoff is of low concern, any on-going runoff must be sampled to demonstrate acceptability of discharge to Portland Harbor.

7. Section 4.1 – Stormwater and Storm Solids Screening Assessment: For the following reasons, DEQ does not approve this assessment.

    a. DEQ's July 14, 2016 comment letter on the 2010 Data Summary Report requested that all data presented in the SCE "…be compared to EPA's preliminary remediation goals (PRGs) for Portland Harbor, supplemented by Table 3-1 for constituents not list in the PRG tables." Since issuance of the EPA Portland Harbor Record of Decision (ROD) in January 2017, comparisons are made to the Portland Harbor Cleanup Levels found in Table 17 of the ROD, supplemented by Joint Source Control Strategy Table 3-1 screening level values (SLVs). DEQ and EPA are currently finalizing an updated comprehensive JSCS Screening Table, which should be used for screening in future reports.
    b. The Draft SCE presents an elaborate four-tiered screening process with "updated" values presented in Tables A-1 and A-2 that are frequently orders of magnitude higher than Table 17 and Table 3-1 values.
    c. DEQ compared the available 2007-2009 data presented in the 2010 Data Summary Report to the JSCS Table 3-1 SLVs and rank order curves and presented the results in the July 14, 2016 comment letter. Despite not having data from all areas of the site (B infiltration [formerly C], F and G), data being eight to ten years old, storm protocols not being met and comparably low method detection limits not being achieved; DEQ's

evaluation indicated that source control measures were warranted in areas C and D (formerly D1, D2 and E).

d. The presented data screening lacks any new data, does not represent all currently relevant areas of the site and does not acceptably meet sample collection and analytical protocols. Therefore, this re-screening of inadequate data does not provide actionable information and leaves many of the statements made in Sections 4.1.2 and 4.1.3 unsupported.

Given the direction of the project into source control measures evaluation, DEQ recommends limiting the screening discussion to a simplified recounting of the initial screening of existing data, inclusive of any useful NPDES data. Please review and revise Section 4.1, Tables 4-1, 4-2, A-1 and A-2; and any information retained from Section 6.1.3 accordingly.

8. Appendix A: The stormwater and solids distribution plots, presented as Tables A-3a through A-4i, use scales along the concentration axes that differ from the charts provided in Appendix E of DEQ's Guidance. Using a larger scale subtly skews comparison to the DEQ generated curves and can appear to flatten curves inappropriately. Please use the same scale as the DEQ generated curves when presenting these plots, if included in the revision, and also in future reports with additional data from effectiveness monitoring.

9. Section 4.4 – Evaluation of Site Utilities and Groundwater Elevations: This section does not include discussion of currently functional and severed pipes leaving the site in the south corner of area A toward Doane Creek and abandoned gas plant utilities in area D, as described in Section 3.1.1. Please indicate these locations on Figure 4-2 and provide discussion as to intersection of pipes and backfill with seasonal high groundwater elevations, dry weather flow observations, documentation of formal abandonment per City of Portland requirements and other lines of evidence as to preferential transport of contaminated groundwater.

10. Section 5 – Observations of Stormwater Runoff: DEQ appreciates the well-executed implementation of the approved SC Work Plan and thorough documentation and reporting. Particularly useful was the visual summary of observed ponding on Figure 5-1 with directional photo points and accompanying photos in Appendix D-4. DEQ noted the potential for ponded stormwater to flow into inlets at three of the presented photo points, rather than infiltrating or evaporating as presented in the text. Inlets appear to be receiving ponded stormwater in photos 6 and 30, but these areas do not correspond with stormwater infrastructure as presented on Figure 2-1. In addition, the ponded area viewed from photo point 26 appears to potentially enter a sump shown on Figure 2-1. Please clarify what these inlets are and discuss the potential for these ponded areas to be conveyed in the stormwater, sanitary or other systems as discharges.

11. Section 5.2.2 – Overland Flow Toward the River: DEQ concurs with the locations of overland flow pathways along the shoreline derived from mapped observations, as indicated by blue arrows on Figure 5-1. DEQ does not agree with the notion that observed flows over the bank do not constitute discharge to the river because they disappear beneath shoreline riprap. Rather, these flows must be controlled and a plan for doing so must be developed and submitted for DEQ approval. If overland discharges cannot be eliminated, they must be monitored.

12. Section 6.1 – Results of Site Stormwater Evaluation: These subsections are redundant to information presented elsewhere in the report and are, therefore, unnecessary.

13. Section 6.2 – Interim Stormwater Source Control Measures: This section should be retitled and expanded to propose source control measures, whether permanent or interim, to address overland flow areas along the shoreline, infiltration of stormwater in area A and to reduce concentrations of contaminants in stormwater discharged from areas C and D (formerly D1, D2 and E). DEQ supports a mix of the proposed options (berms, trench drains, swales, regrading and resurfacing, filtration devices and formal abandonment of storm system components) along with other area-wide approaches to prevent overland flow and reduce site ponding. Additional approaches for consideration include infiltration galleries, paving, green roofs, targeted line cleaning, additional sumps and other stormwater infrastructure additions, which may improve site use for business purposes in conjunction with redevelopment in area A. Additional source tracing and tenant coordination may be needed in areas D and C to determine what measures or enhancements may be appropriate.

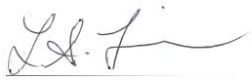
14. Once source control measures are evaluated and selected, development of an effectiveness demonstration is needed, appropriate to measures selected. DEQ's July 14, 2017 comment letter requested that the report submitted subsequent to the completion of the SC Work Plan include source control measures to be implemented and appropriate effectiveness monitoring. DEQ anticipates the effectiveness demonstration will include additional observations in areas where overland flow is intended to be eliminated and stormwater monitoring in areas when measures are applied to on-going discharges.

NEXT STEPS

Please retitle, restructure and revise the report in consideration of the comments presented above, for resubmittal to DEQ within 30 days of the date of this letter (or by September 6, 2017).

I am available to meet with NW Natural to review and discuss DEQ's comments and the requested source control measures and performance monitoring work plan, as well as realizing efficiencies between stormwater source control and new coverage under the 1200Z permit, so that we may bring the stormwater source control evaluation to completion. I can be reached at liverman.alex@deq.state.or.us or 503-229-5080 or at the address on this letterhead.

Sincerely,



L. Alexandra Liverman
Portland Harbor Stormwater Coordinator

cc: Patty Dost, Pearl Legal Group
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